

# A Nanodroplet Processor for Advanced Microencapsulated Drug Formulations, Phase II

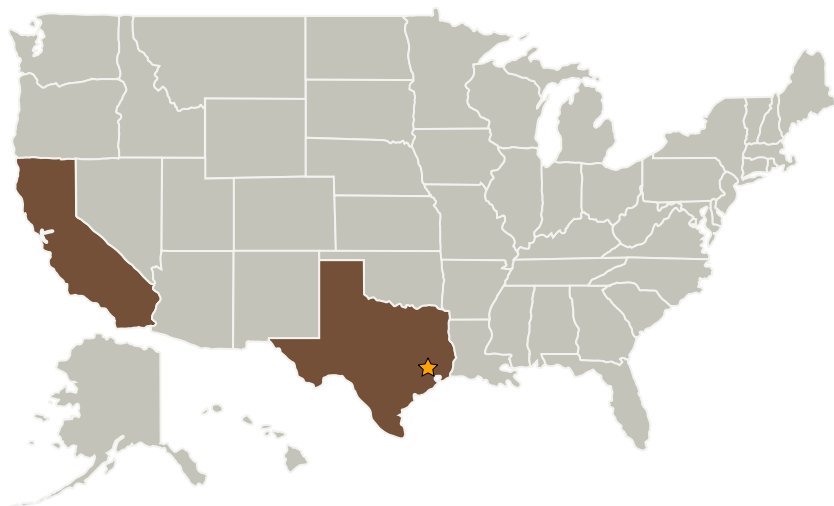
Completed Technology Project (2005 - 2007)



## Project Introduction

During this Phase II program we propose to build on the key aspects of the nanodroplet encapsulation technology to demonstrate optimized formulation and encapsulation of protein drugs. The ability of the nanodroplet generator to produce nanoscale drug "containers" with designer characteristics provides us with a distinct advantage in targeting protein containing vesicles to diseased cells and organs. We plan to target cancerous cells and tumors using our engineered drug vesicles, with specifically designed lipid outer layers as well as targeted surface functionalization to improve drug uptake by the cells, reduce toxicity, and otherwise improve safety and efficacy. The optimized vesicles will result in improved stability and enhanced control of pharmacokinetics in both cell lines and animal models. The nanodroplet platform will be scaled up to produce gram quantities of engineered vesicles with a monodisperse size distribution and a target size of 200nm.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Nanotrope, Inc.	Supporting Organization	Industry	Cardiff, California



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Johnson Space Center (JSC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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## Primary U.S. Work Locations

California

Texas

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

## Technology Areas

### Primary:

- TX17 Guidance, Navigation, and Control (GN&C)
  - └ TX17.1 Guidance and Targeting Algorithms
    - └ TX17.1.2 Targeting Algorithms